

INK, HEART & SOUL



WE TAKE RESPONSIBILITY!

Solutions for printing on paper applications that are in contact with food



SIEGWERK

The future of packaging

From a linear to a circular packaging solution

Creating a circular economy is key to ensuring a sustainable future for packaging. Printing inks and coatings are crucial in terms of the recycling of packaging, and play an essential role in the implementation of a circular economy in the packaging industry. Their technical functional properties underpin the implementation of all three aspects of a circular economy: reduction, reuse and recycling of packaging.

It is easy to replace the current Siegwerk products with UniNATURE products, as it requires no changes to equipment, processes or color-matching!

Innovative printing inks and coatings enable us to close the gaps in the technical performance of specific materials, e.g. paper, to enhance their properties so they can be used for new applications.

Siegwerk is making a contribution to the creation of a circular economy with innovative solutions. With UniNATURE, Siegwerk's new sustainable range of printing inks and the new UNILAC barrier coating products for paper and board applications.

UniNATURE products are characterized by a high bio-renewable content (BRC), and the blends and technical coatings have been designed to use with Siegwerk's UNIBASE and Uni T products.

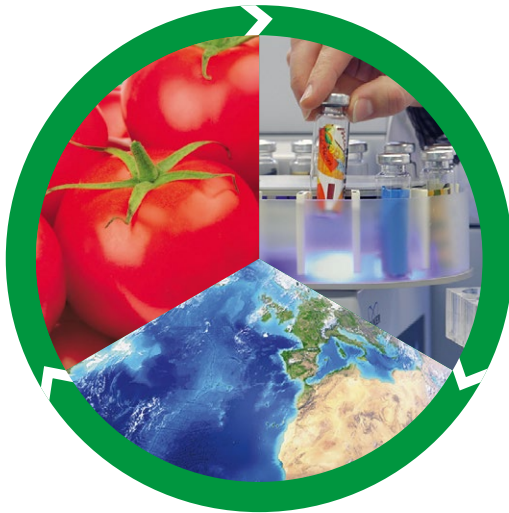




As one of the world's leading ink manufacturers, Siegwirk is committed to the principle of sustainability: we achieve a viable balance between ecological, social and economic needs without compromising the resources of future generations.

Combined strengths

Three challenges arise when developing coatings for paper applications in contact with food to achieve a seamless value chain



Protecting food

The product design is based on technical innovation and customer requirements

Protecting consumers

We ensure product security in terms of food safety and consumer health

Protecting our planet

The products can be recycled, composted and are biodegradable

Based on the challenges presented, Siegwirk offers its customers a collaborative approach to developing optimal solutions for specific customer requirements. We have a broad spectrum of coating options with the following properties:

- Approved for contact with food
- Compatible with standard water-based printing processes
- Suitable as overprint varnish (OPV) with the existing Siegwirk ink systems
- Acts as an independent barrier coating (i.e. no primer coat required) in single or multiple coatings
- Reduction of plastic content: up to 70–80%; lower coating weight compared to a typical PE/PET coating
- Renewable portion of the coating: up to 100%
- No GMOs, palm oil or soya
- Allergen-free
- No flourochemicals

Bakery Bags

Baked goods packaged in an environmentally friendly and colorful way

Consumer demands in the snack market are extremely high. When consumers purchase sandwiches, open sandwiches and snacks, they expect absolute freshness, a satisfying taste and a reliable resistance of the packaging to fatty, acidic and slightly alkaline foods.

Our Siegwerk solution for baked goods:

Ink printing systems and coatings

- **UNI T:** highly concentrated pigment bases
- **UNISACK:** water-based ink series for paper sacks, bags and pouches
- **UNILAC:** water-based overprint coatings

Advantages of the Siegwerk solution

- water-based overprint coatings
- Complies with the current statutory food regulations
- Excellent water resistance
- Highly resistant to fats, acidic and slightly alkaline foods
- Extremely abrasion-resistant
- Enables compliance with EN 646 (bleed resistance) and the German Federal Institute for Risk Assessment (BfR) opinion no. 021/2014



Wrapping paper for food

User-friendly solution with numerous benefits

Wrapping paper must be able to store, retain the freshness of and transport food. Wrapping paper must therefore meet a range of material requirements depending on the type of food. Cheese, for example, requires different packaging properties compared to a burger or a piece of cake.

The Siegwerk solution for wrapping paper:

Ink printing systems and coatings

- **UNI T:** highly concentrated inks developed for printing on materials in contact with food
- **UNIWRAP:** water-based ink series for food applications
- **UniNATURE:** the latest generation of water-based coatings with a high proportion of renewable raw materials
- **UNILAC:** water-based overprint coatings

Advantages of the Siegwerk solution

- Food compliant: low odor and low migration; this printing solution can be used safely on food wrapping paper
- fast drying, high productivity
- high resistance of prints, no bleeding



Paper packaging for food

High color intensity and excellent print results

The use of paper packaging for food is steadily increasing. Technological advances ensure compliance with the required protective functions and current food regulations, even for the packaging of durum wheat.

The Siegwerk solution for food packaging:

Ink printing systems and coatings

- **UNI T:** highly concentrated color concentrates
- **UNIWRAP:** water-based ink series for paper sacks, bags and pouches
- **UNILAC:** water-based overprint coatings

Advantages of the Siegwerk solution

- Low VOC content
- Complies with the current statutory food requirements
- Excellent water resistance
- Highly resistant to fats, acidic and slightly alkaline foods
- Extremely abrasion-resistant
- Enables compliance with EN 646 (bleed resistance) and the German Federal Institute for Risk Assessment (BfR) opinion no. 021/2014



Napkins, kitchen towels and other tissue products

Print solutions for all motifs – from simple to high-end designs

In addition to the aesthetic value of printed motifs on napkins for example, many tissue products, such as paper towel products, paper hankies and kitchen towel, perform hygienic functions in both the private and professional spheres.

The Siegwark solution for tissue products:

Ink printing systems

- **UNI T:** highly concentrated pigment concentrates developed for printing on materials in contact with food
- **Color Tissue extenders:** low maintenance and quick drying for high-speed printing

Advantages of the Siegwark solution

- Food compliant: low odor and low migration
- High color intensity, excellent print results, outstanding color stability with high print runs
- Low viscosity
- Enables compliance with EN 646 (bleed resistance) and the German Federal Institute for Risk Assessment (BfR) opinion no. 021/2014



Our ink series is certified by the free and independent testing and certification institute, Wessling, for use on tissue products.

Teabag tags

Ink printing system for high print runs

Many tea bags have a tag or label attached which is made from untreated cotton. In addition to ensuring the quick, easy and safe handling when adding and removing the tea bag, the tag provides an opportunity for an individual, creative design.

The Siegwerk solution for teabag tags:

Ink printing systems and coatings

- **UNI T:** highly concentrated pigment concentrates developed for printing on materials in contact with food
- **UNIPAPER TT:** low maintenance and quick drying blends for high-speed printing
- **UNILAC:** water-based overprint coatings

Advantages of the Siegwerk solution

- Food compliant: low odor and low migration
- Enables compliance with EN 646 (bleed resistance) and the German Federal Institute for Risk Assessment (BfR) opinion no. 021/2014
- High color intensity
- Excellent print results
- Ink-stability during long runs



Drinking cups for hot & cold drinks

Higher efficiency with the Siegwark printing solution

Colorful disposable cardboard cups are a constant feature in our private and professional life. Increasingly mobile lifestyles and hygiene considerations play a decisive role in the use of drinking cups.

The Siegwark solution for drinking cups:

Ink printing systems and coatings

- **UNIBASE:** highly concentrated color concentrates
- **UNICUP:** water-based ink series, specifically developed for drinking cups for hot and cold drinks
- **UniNATURE:** latest generation of water-based blends with a very high proportion of renewable raw materials
- **UNILAC:** water-based overprint coatings

Advantages of the Siegwark solution

- No overprint coating is necessary due to the excellent abrasion resistance of the ink
- Food compliant: low odor and low migration
- Highly resistant to fats, acids and other food components



Liquid Food Packaging

Excellent print results and high product safety

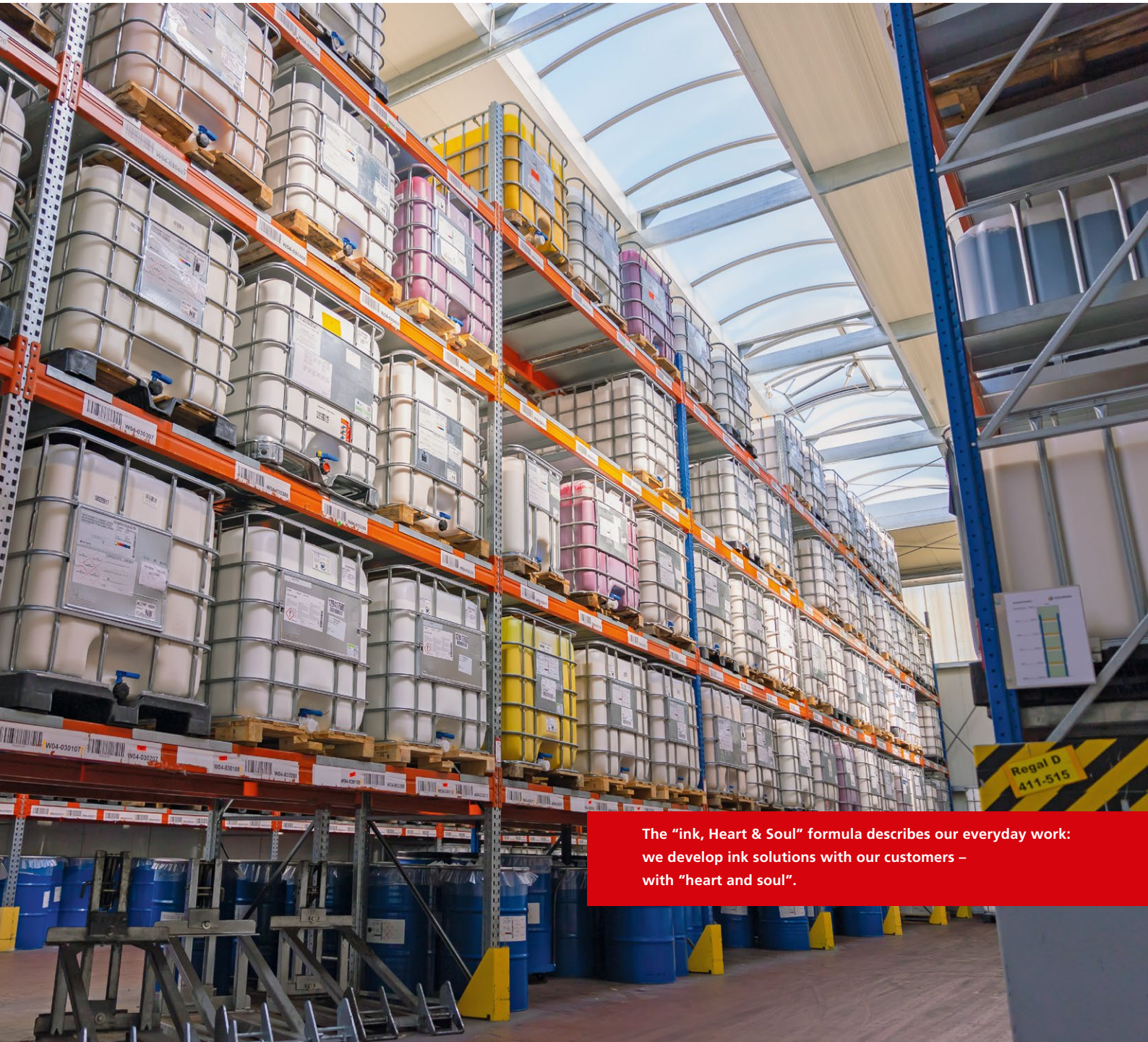
Printing ink solutions for food packaging with a fluid or paste-like content is a core competence of Siegwirk. We have gained extensive knowledge of product safety and great expertise through our cooperation with international customers from our many years of close collaboration with leading manufacturers of carton packaging for liquid food.

In this packaging sector we develop solutions for offset, gravure and flexo printing. Here, we wish to fulfil the most stringent requirements in terms of sensory properties and migration values. For Siegwirk, it is natural to guarantee efficiency and the highest quality in packaging printing during the printing process. Cardboard and PE-coated cardboard are used as print substrates.

Siegwerk provides print solutions for all food and drink packaging

Siegwerk therefore has a print solution in its portfolio for both packaging of fresh products and aseptically filled beverages and food e.g. desserts, sauces and ready meals.





The “ink, Heart & Soul” formula describes our everyday work: we develop ink solutions with our customers – with “heart and soul”.

Three core elements for product safety

Safety that creates security

We want you to feel safe and secure with our products at all times, and therefore offer excellent product safety comprising the following three core elements:

We take responsibility

- Stringent material testing and raw material selection and a central introduction process
- Global formulation guidelines that comply with the current regional mandatory regulations at all times and the specifications of the brand owner are further developed
- Formulations taking into account the latest expertise and own migration assessments
- High industry standards through active participation in associations and support of legislative processes with our expert knowledge

We ensure transparency

- “Statements of composition” are published for products in the food contact sector which contain detailed information on potentially migratory substances to guarantee full transparency
- Assistance with creating your own declaration of conformity
- Practical information about the use of printing inks in the production of safe packaging (technical data sheet)

We strengthen our partners

- Assistance with questions and training on all aspects of product safety
- Competent contact partner with the latest knowledge of developments in the regulatory sphere, and an early understanding of the impact of new regulations on your business



Partners in the printing and packaging process

A wide range of services – from the laboratory to the print machine

Siegwerk places customer requirements at the center of all our research and development work: excellent color performance, technical advice and support and strict compliance with product safety specifications are therefore a matter of course. This not only requires expertise with ink, but also an in-depth understanding of all the processes in a print works. We are a development and service partner who ensure that printing inks make an important contribution to greater efficiency in the printing and packaging process. Siegwerk therefore offers an extensive service portfolio and provides a customized service package which is specifically designed for each customer and tailored to their requirements.

Our services range from color management and training to assistance with packaging development.

Technical support

- Support in the production processes when introducing new ink or print technologies (e.g. barrier coatings)

- Error analysis and development of technical or practical solutions
- Personnel training in the handling of printing inks in the machine
- Colorimetry and color management
- Quality assurance and test methods
- Remote services solution

Consultancy and training

- Help with packaging development
- Product safety training and advice on the legal requirements
- Workshops to improve process procedures
- Instruction and training on all aspects of color management
- Audits and benchmarking to identify potential areas for improvement
- OPS – the optimization program for paper and board customers

Siegwerk Online Services

Please visit "www.siegwerk.com" and go to the "Product Responsibility" section to find extensive data and facts about our printing inks, background information on the complex subject of food packaging and information about our sustainable

raw material introduction processes. You can also access our databases for information about specific ingredients, and download the safety data sheets that are relevant for you online.



